

BEFORE THE
BOARD OF OIL, GAS & MINING
DEPARTMENT OF NATURAL RESOURCES
STATE OF UTAH

IN THE MATTER OF THE FORM AND AMOUNT OF THE SURETY FOR THE LISBON VALLEY COPPER PROJECT IN SAN JUAN COUNTY, UTAH OPERATED BY SUMMO USA CORPORATION	FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER APPROVING FORM AND AMOUNT OF THE SURETY Cause No. M/037/088 (Matter Heard by the Board 1/22/97 as Agenda Item No. 1)
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Pursuant to notice, the above matter came on for hearing before the Board of Oil, Gas & Mining (the "Board") at its regularly scheduled hearing held in Salt Lake City, Utah on January 22, 1997. Members of the Board present at the hearing included Chairperson Dave D. Lauriski and members Jay L. Christensen, Thomas B. Faddies, Judy F. Lever, Raymond Murray and Kent G. Stringham. Board member Elise L. Erler was present, but she recused herself and took no part in hearing or deciding this matter. A consultant, Lee "Pat" Gochnour, a principal in the firm of Gochnour & Associates, P.O. Box 3207, Englewood, CO 80155 testified as a witness for Summo USA Corporation (the "Operator"). Utah Division of Oil,

Gas & Mining ("Division") Permit Supervisor D. Wayne Hedberg and Division Senior Reclamation Specialist Anthony A. Gallegos testified as witnesses for the Division. Assistant Attorney General Patrick J. O'Hara acted as counsel to the Board.

Having duly considered the form and amount of the proposed surety, and all of the information provided to the Board at the hearing, the Board rules as follows:

FINDINGS OF FACT

1. The Utah Division of Oil, Gas and Mining (the "Division"), by and through staff members Mary Ann Wright, D. Wayne Hedberg and Anthony A. Gallegos, recommended that the Board approve a reclamation surety for the Operator's mine, in the form of a \$2,591,054 corporate surety bond issued by Robert C. Bates, Inc. of Tulsa, OK, for the reasons set forth in detail in that certain letter dated January 7, 1997 to the Board from the Division, and the supplemental attachments thereto, including those attachments which were distributed to the Board members at the hearing, which documents are attached hereto collectively as Exhibit A (the "Recommendation").

2. As set forth in the Recommendation, in consultation with the Operator, the Division had, prior to the hearing, determined that the cost to reclaim

the portion of the Mine which is covered by the Operator's notice of intention to mine during the next three years will be \$2,591,054 escalated to 2002 dollars, based on site-specific calculations reflecting the Division's cost to reclaim the Mine.

2. Except as noted below, all of the facts sets forth in the Recommendation are hereby incorporated by reference and are hereby expressly adopted by the Board as the Board's own factual findings.

3. To further study, verify and, if necessary, update the reclamation estimate applicable to the disturbed land, the Board ordered the Division staff to engage in further post-hearing consultations with the Operator. As set forth in the Division staff memorandum dated March 11, 1997 to the Board of Oil, Gas & Mining attached hereto as Exhibit B (the "Staff Update"), the Division, having completed those further consultations, has determined, with the input and assent of the Operator and the U.S. Bureau of Land Management, that the site specific reclamation project will impact 395 acres (not 314.4 acres as previously assumed in the Recommendation), and that the bond amount should be and is revised to be exactly \$2,689,000 in dollars escalated to the year 2000.

4. The Board hereby adopts and incorporates the Staff Update as a finding of the Board as a supplemental revision to the original Recommendation.

5. Robert C. Bates, Inc. of Tulsa, OK issues corporate surety

bonds.

6. The Operator has agreed that the Operator shall provide the Division with appropriately certified surveys (aerial, g.p.s., etc.), and disturbed area maps that accurately reflect the actual affected areas, at least once each year with its year end Annual Report. The surveys and maps shall be stamped and prepared under the direct supervision of a registered professional engineer or registered land surveyor.

CONCLUSIONS OF LAW

1. The Board has the authority under Utah Code Ann. Sec. 40-8-7(e) (1953, as amended) and Utah Administrative Code R647-4-113.4 to determine the form and amount of the reclamation surety for the above-captioned mining operation.

2. The Board has the power, under Utah Administrative Code R647-4-113.4.12, to accept as a reclamation surety a corporate surety bond payable to the Division in the form attached to the Recommendation, but based on the revised dollar amount and revised acreage reflected in the Staff Update.

3. A Robert C. Bates, Inc. corporate surety bond payable to the

Division in the exact amount of \$2,689,000 in the form attached to the Recommendation, but based on the revised acreage and revised dollar amount reflected in the Staff Update, is a form and amount of reclamation surety acceptable to the Board in this matter.

ORDER


Based on the foregoing Findings of Fact and Conclusions of Law, IT IS
HEREBY ORDERED:

The Operator shall, prior to commencing mining operations, provide the Division, and the Division shall accept from the Operator as a suitable reclamation surety, a Robert C. Bates, Inc. corporate surety bond, in the form attached to the Recommendation, payable to the Division, but revised to apply to the 395 acres described in the Staff Update and further revised be payable to the Division in the exact amount of \$2,689,000. If the Operator fails to provide said surety to the Division by no later than December 31, 1997, the Operator will need to come back to the Board at a de novo hearing to re-request approval as to the form and amount of the surety. Also, the Operator may not engage in any mining activity outside the 395 acres as described more particularly in the Recommendation and the Staff Update, without first coming back to the Board request approval as to the form and amount of the surety on any such additional acreage. To assure compliance

with this Order, the Operator shall provide the Division with appropriately certified surveys (aerial, g.p.s., etc.), and disturbed area maps that accurately reflect the actual affected areas, at least once each year with its year end Annual Report. The surveys and maps shall be stamped and prepared under the direct supervision of a registered professional engineer or registered land surveyor.

ISSUED this 14 day of March, 1997.

BOARD OF OIL, GAS & MINING

By 
Dave D. Lauriski
Its Chairperson

CERTIFICATE OF SERVICE

I hereby certify that, on the 18 day of March, 1997, I mailed, postage prepaid, a true and correct copy of the foregoing FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER APPROVING FORM AND AMOUNT OF THE SURETY to the following:

Summo USA Corporation
Attn: President
Denver Center Building, Suite 900
1776 Lincoln Street
Denver, CO 80203

I further certify that I caused copies of same to be hand-delivered on said date to:

Mr. James W. Carter
Director
Division of Oil, Gas & Mining
Department of Natural Resources, State of Utah
1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, UT 84114-5801

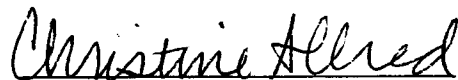
Mr. D. Wayne Hedberg
Permit Supervisor
Division of Oil, Gas & Mining
Department of Natural Resources, State of Utah
1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, UT 84114-5801

Mr. Lowell P. Braxton
Deputy Director
Division of Oil, Gas & Mining
Department of Natural Resources, State of Utah
1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, UT 84114-5801

Mr. Anthony A. Gallegos
Senior Reclamation Specialist
Division of Oil, Gas & Mining
Department of Natural Resources, State of Utah
1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, UT 84114-5801

Ms. Mary Ann Wright
Associate Director-Mining
Division of Oil, Gas & Mining
Department of Natural Resources, State of Utah
1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, UT 84114-5801

Patrick J. O'Hara, Esq.
Assistant Attorney General
Office of the Attorney General, State of Utah
1594 West North Temple, Suite 300
Box 140855
Salt Lake City, UT 84114-0855


Christine Allred
Secretary to the Board



State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor

Ted Stewart
Executive Director

James W. Carter
Division Director

1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801
(801) 538-5291
(801) 359-3940 (Fax)

January 7, 1997

TO: Board of Oil, Gas and Mining

THRU: Mary Ann Wright, Associate Director *MAW*

THRU: D. Wayne Hedberg, Permit Supervisor *DWH*

FROM: Anthony A. Gallegos, Senior Reclamation Specialist *adg*

RE: Request for Board Approval, Proposed Amount and Form of Reclamation Surety, Summo USA Corporation (Summo), Lisbon Valley Copper Project, M/037/088, San Juan County, Utah

At the request of the operator, the Division seeks the Board's conditional approval of the amount and form of reclamation surety proposed by Summo for the Lisbon Valley Copper Project, located in San Juan County, Utah. The form of surety is a surety bond with Robert C. Bates, Inc. The \$1,863,967.50 amount of surety proposed by Summo represents 30% of the surety amount estimated for the entire 10-year life of mine disturbance. This dollar amount includes escalation to year 2002 dollars. Summo proposes to limit operations to 30% of the total disturbed area (314.4 acres) for the first three years of mining operations. The total surety estimated for the entire project disturbance of 1,048 acres is \$6,213,225 (2002-\$).

If the Board approves of this proposed form and amount of surety, Summo's project will have a "permit area" of 1,048 acres and a "bonded area" of 314.4 acres. Under this proposal Summo will not be allowed to disturb more than 314.4 acres until the surety amount is increased appropriately or impacted areas are successfully reclaimed. The Division will re-evaluate the surety estimate in three years (year 2000) and update the bond accordingly at that time.

Summo is not posting the actual surety at this time because the BLM's Record Of Decision (ROD) for this project has not been issued yet. The ROD is anticipated to be issued during the first quarter of 1997. In addition to this surety, Summo will be required to post a separate \$25,000 surety with SITLA for rental and royalty associated with their State Leases to be mined.

EXHIBIT

A

DOGM MINERALS PROGRAM

Checklist for Board Approval of FORM AND AMOUNT OF SURETY

Prepared January 9, 1997

Company Name: Summo USA Corporation
Mine Name: Lisbon Valley Copper Project
File No.: M/037/088

Items	Provided		Remarks
	Yes	No	
Executive Summary	X		
Location Map	X		
Reclamation Bond Estimate	X		Operator proposes posting 30% of total life of mine surety initially (first 3 years)
Signed Reclamation Contract	X		
Signed Power of Attorney/ Affidavit of Qualification		X	
Bond/Reclamation Surety		X	Surety to be provided after BLM Record of Decision
Surety Sign Off (Other State/Federal Agencies)		X	Joint surety bond form
RDCC contacted	X		

M037088.ckl

Geology Description: The structure of the project area is dominated by two features: the southeast end of the Lisbon Valley Anticline and the Lisbon Valley fault zone. Rocks exposed at the surface within and surrounding the Lisbon Valley range in age from the Pennsylvanian, represented by the Hermosa Formation, through the Quaternary. Sedimentary rocks exposed in Lisbon Valley consist mainly of fluvial sandstones and claystones. These rocks are interbedded with limestones and conglomerates that were deposited during the Cretaceous Era. Ore deposits in the project area are generally tabular in shape, parallel the sedimentary bedding planes and are elongated along the axis of the Lisbon Valley Fault. The Lower Cretaceous Burro Canyon Formation underlies the Dakota Sandstone of the Upper Cretaceous Age. The copper ore to be mined occurs in rocks of the Dakota Sandstone and underlying Burro Canyon Formation. The Burro Canyon Formation consists of brown and grey, commonly silicified sandstone and conglomerate overlain by interbedded limestone and mudstone. The Dakota Sandstone consists of yellow and brown, predominantly medium-grained sandstone with some conglomerate. Copper ore mineralization in these formations predominantly consists of the copper oxides, azurite, and malachite, with copper sulfide minerals (mostly chalcocite). Ore minerals are found coating sand grains, filling fractures, and as intergrain matrix. Interbeds of coal and carbonaceous mudstone are present in the Dakota Sandstone.

Hydrology

Ground Water Description: Water bearing units in the study area are part of the Mesozoic Aquifer. Regional groundwater flow directions in this aquifer unit are generally towards the west, and it is recharged from the east. Recharge to the aquifers from precipitation is very limited in extent. Groundwater is known to exist in three water bearing units beneath the project site. The shallow aquifer extends to approximately 400 feet below ground surface and is comprised of the Burro Canyon Formation and Brushy Basin Member of the Morrison Formation. This zone of relatively high hydraulic conductivity rocks is dry in some portions of the valley. Groundwater flow in this unit is highly segmented, with faults appearing to act as barriers to groundwater flow across the faults. An alluvial aquifer of limited extent exists in the valley fill sediments near the Sentinel Pits. A deeper aquifer at the site is located at depths of 900 feet below ground surface or greater in the Centennial Pit area and has been sampled and tested. Initial sampling shows this aquifer has similar characteristics to the regional aquifer. This aquifer is of more regional extent and consists of the Entrada and Navajo Sandstones. Groundwater is also locally perched on clay and shale layers at the shallower depths within the project area. Groundwater in the valley fill exceeded Utah primary or secondary standards for aluminum, manganese and lead. Groundwater in the Burro Canyon Member in the Centennial Pit area exceeded Utah primary or secondary standards for aluminum, cadmium, iron, manganese, zinc, sulfate and TDS. Groundwater in the Burro Canyon Formation in the GTO Pit area exceeded Utah primary or secondary standards for aluminum, antimony, cadmium, iron, lead, manganese, nickel, and thallium. Groundwater in the Mancos Shale exceeded Utah primary or secondary standards for manganese, sulfate, and TDS. Groundwater in the Hermosa Formation exceeded Utah primary or secondary standards for aluminum, antimony, and fluoride. Samples from all of these units exceeded the primary standards for gross alpha and gross beta activities.

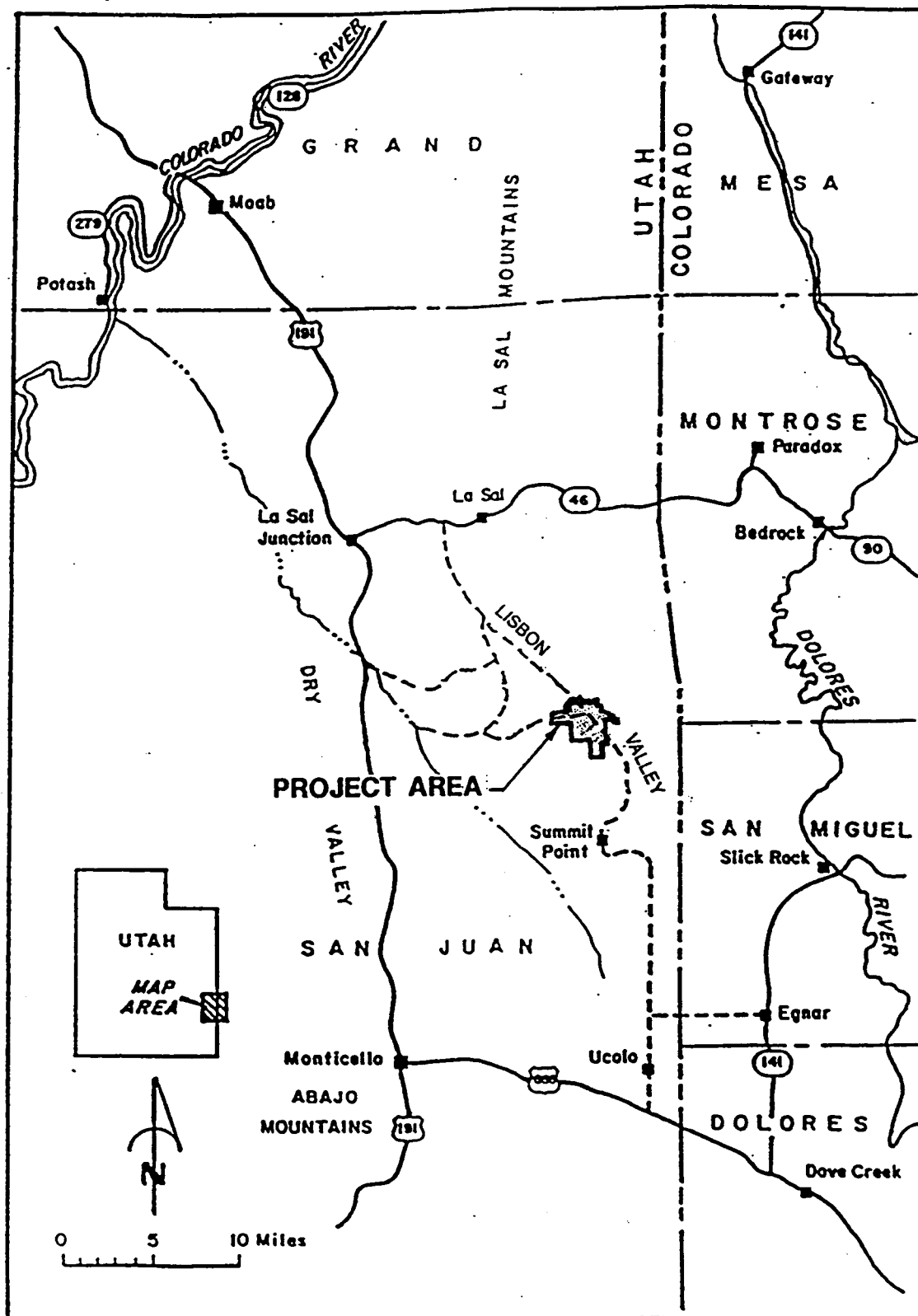
Surface Water Description: Surface water flow is ephemeral in the project area. Surface runoff from areas beyond the rim of the valley generally flows away from the valley. Only the valley floor acts as a catchment area for surface water flow. The flow system which exists in the valley is poorly developed. Surface water drainages in the project area are characterized by dry washes typical for this area of Utah. Ephemeral flow occurs only after major precipitation events such as thunderstorms. A surface water drainage divide exists east of the Centennial Pit. The area east of this divide is drained predominantly by an ephemeral stream that

stored and used onsite will include sulfuric acid, an extractant, a diluent (kerosene), ferrous sulfate, cobalt sulfate and chlorine. Ammonium nitrate would be stored in silos or bins in a bermed area. Storage tanks for process water. All potable water will be provided by bottled water. Power will be provided by a suspended raptor-proof 69-kV powerline from the existing Hatch substation running east to Lisbon Valley. An ore stockpile and crushing area. A conveyor system for ore placement on the lined heap leach area. A solvent extraction electrowinning (SX-EW) facility. A double lined pregnant pond and raffinate pond with leak detection systems. A lined stormwater pond and emergency overflow pond.

Mining and Reclamation Plan Summary:

During Operations: Mining operations will be conducted in four pits Sentinel #1, Sentinel #2, Centennial, and GTO. Rock berms or fences would be installed to prevent public access to the pits. Dozers will be used to rip ore and waste in addition to drilling and blasting to fragment the rock. Blast holes would be drilled using a 10-inch rotary drill with ANFO as the explosive agent. Waste rock will be hauled from the open pits to the waste dumps using haul trucks and scrapers. Soils from the waste dump area would be salvaged for use in reclamation prior to dumping. Dumps would be constructed by a combination of end dumping and dozing the material over the side of the dump in 40 - 50 foot lifts while maintaining an overall outslope of 2.5h:1v. Haul roads would be installed inside and outside the pits, and among facilities to access the pits, waste dumps and the ore crushing facilities. Approximately 15,000 linear feet of haul roads would be constructed. Ore would be hauled to the crushing facilities located near the heap leach pad. Ore would be crushed to a size of 1 1/2 to 2 inches by a jaw crusher and secondary cone crusher. Crushed ore would be transferred to the heap leach pad by a series of conveyors within a lined conveyor corridor. Ore will be placed on the heap in three 36-foot high lifts using a radial stacker. The heap leach pad will include a system of synthetic and clay liners and a leak detection system. The heap leach pad will eventually cover 266 acres. A sulfuric acid solution would be applied to the ore using drip emitters or spray nozzles. Solutions which have percolated through the heap would be collected and piped to the pregnant pond. The pregnant solution is then run through the solvent extraction/electrowinning (SX/EW) plant. The SX circuit would consist of three mixer/settlers and associated storage tanks. The EW circuit would plate out the copper from the strong acidic electrolyte onto cathodes. The cathode copper would be removed from the cells and shipped off site for fabrication purposes.

After Operations: Pit walls and benches would not be revegetated. Pit benches would be allowed to fill with rubble from natural sloughing activities. Haul roads which accessed pit bottoms would be ripped, covered with soil and seeded. It is estimated that water could intermittently collect in each of the pits. The pit perimeters would be planted with indigenous tree species to partially screen the open pits. Waste rock dumps would be developed with benching to maintain an overall slope of 2.5:1. Some grading of waste dumps is required to break up the individual bench levels prior to the application of growth medium. The tops of the waste dumps would be ripped to a depth of about four feet and scarified to form a roughened seedbed surface. The surface would be contoured to encourage infiltration rather than ponding. The leached ore on the pad would be flushed with fresh water to reduce the chemical characteristics of the effluent to acceptable levels. Other treatments such as lime amendments may also be used to neutralize the heaps. Pumping activities would be performed to reduce the solution inventory by using high evaporation sprinklers. After the heap has been decommissioned, the heap slopes would be reduced from the operational slope of 2:1 to an overall slope of 2.5:1. The benches and top of the heap would be graded to establish positive drainage. The top and sides of the heap would be either covered with compacted soils or treated with commercially



SOURCE: SUMMO, 1996

Job No. :	23996
Prepared by :	G.J.W.
Date :	1/24/95

LOCATION MAP
LISBON VALLEY AREA
SAN JUAN COUNTY, UTAH

[illegible]

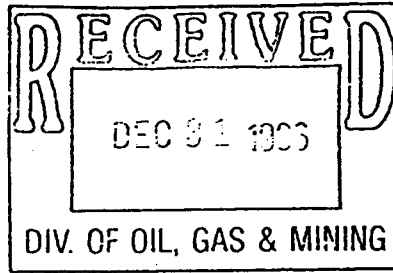
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DESCRIPTION: SUMMARY OF RECLAMATION COSTS										CAPITAL COST ESTIMATE													
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GOCHNOUR & ASSOCIATES, INC.

P.O. Box 3207
Englewood, CO 80155

Tel. (303) 770-7580
Fax: (303) 721-9298



December 30, 1996

Mr. Anthony Gallegos
State of Utah
Division of Oil, Gas & Mining
1594 West North Temple, Suite 1210
Salt Lake City, Utah 84114-5801

RE: Summo USA Corporation, Lisbon Valley Copper Project - Reclamation Contract and Proposed Reclamation Bond

Mr. Gallegos:

Summo USA Corporation (Summo) is please to submit the above referenced information to the Utah, Division of Oil, Gas, and Mining (Division), which will in turn be presented to the Board of Oil, Gas and Mining on January 22, 1997.

This letter includes as Attachments:

- An executed Reclamation Contract
- The proposed form and initial amount of Surety

Please note that initial reclamation bond amount is equal to 30% or three years of the proposed project. While Summo has calculated reclamation obligations for the current life of the proposed project, it is understood that activities beyond three years or 30 % of the total bond can not be initiated until additional satisfactory bonding is in place. Or, when reclamation of approved activities is completed to Division satisfaction.

This should satisfy all of the conditions and questions that the Division has requested of Summo. If there are additional questions or needs, please contact me at the listed letterhead number.

Sincerely,

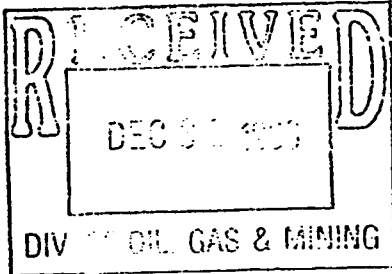
Lee "Pat" Gochnour
Principal

Attachments (2)

cc: Mr. Robert Prescott - Summo USA Corporation

File Number M/037/088

Effective Date _____



STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION of OIL, GAS and MINING
1594 West North Temple Suite 1210
PO Box 145801
Salt Lake City, Utah 84114-5801
(801) 538-5291
Fax: (801) 359-3940

RECLAMATION CONTRACT

---ooOoo---

For the purpose of this RECLAMATION CONTRACT the terms below are defined as follows:

"NOTICE OF INTENTION" (NOI): (File No.) M/037/088
(Mineral Mined) Copper

"MINE LOCATION":
(Name of Mine) Lisbon Valley Copper Project
(Description) 18 miles south of La Sal, Utah
San Juan County

"DISTURBED AREA":
(Disturbed Acres) 314.4 Acres/30% of total project*
(Legal Description) (refer to Attachment "A")

"OPERATOR":
(Company or Name) Summo USA Corporation
(Address) Denver Center Building, Suite 900
1776 Lincoln Street
Denver, CO 80203
(Phone) 303-861-5400

* See Attachment A for Explanation

NOW, THEREFORE, the Board and the Operator agree as follows:

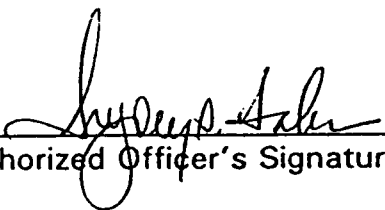
1. Operator agrees to conduct reclamation of the Disturbed Area in accordance with the Act and implementing regulations, the original Notice of Intention dated August 1995, and the original Reclamation Plan dated August 1995. The Notice of Intention as amended, and the Reclamation Plan, as amended, are incorporated by this reference and made a part hereof.
2. Concurrent with the execution hereof, Operator has provided surety to assure that reclamation is conducted, in form and amount acceptable to the Board. Such surety as evidenced by the Surety Contract is in the form of the surety attached hereto as Attachment B and made a part hereof. The Surety Contract shall remain in full force and effect according to its terms unless modified by the Board in writing. If the Surety Contract expressly provides for cancellation, then, within 60 days following the Division's receipt of notice that the Surety Company intends to cancel the Surety Contract, the Operator shall provide a replacement Surety Contract in a form and amount reasonably acceptable to the Board. If the Operator fails to provide an acceptable replacement Surety Contract, the Division may order the Operator to cease further mining activities and to begin immediate reclamation of the Disturbed Area.
3. Operator agrees to pay legally determined public liability and property damage claims resulting from mining to the extent provided in Section 40-8-7(1)(e) of the Act.
4. Operator agrees to perform all duties and fulfill all reclamation requirements applicable to the mine as required by the Act and implementing rules, the Notice of Intention, as amended and the Reclamation Plan, as amended.
5. The Operator's liability under this Contract shall continue in full force and effect until the Division certifies that the Operator has reclaimed the Disturbed Area in accordance with the Act and implementing rules, the Notice of Intention, as amended and the Reclamation Plan, as amended.
6. If reclamation of discrete sections of the Disturbed Area is completed to the satisfaction of the Division, and the Division finds that such sections are severable from the remainder of the Disturbed Area, Operator may request the Division to certify that Operator has reclaimed such discrete sections of the Disturbed Area in accordance with the Act and Implementing rules, the Notice of Intention, as

14. Each signatory below represents that he/she is authorized to execute this Contract on behalf of the named party.

Summo USA Corporation

Operator Name

By: Gregory A. Hahn
Authorized Officer (Typed or Printed)

X 
Authorized Officer's Signature

X 12/30/96
Date

SO AGREED this _____ day of _____, 19____

AND APPROVED AS TO FORM AND AMOUNT OF SURETY:

BY _____
Dave D. Lauriski, Chairman
Utah State Board of Oil, Gas and Mining

OPERATOR:

Summo USA Corporation

Operator Name

By Gregory A. Hahn - President
Corporate Officer - Position

X 12/30/96
Date

X Gregory A. Hahn
Signature

STATE OF X Colorado)
COUNTY OF X Denver) ss:

On the X 30 day of X December, 19X 96, personally
appeared before me Gregory A. Hahn who
being by me duly sworn did say that he/she, the said Gregory A. Hahn
is the President of Summo USA Corporation
and duly acknowledged that said instrument was signed on behalf of said company
by authority of its bylaws or a resolution of its board of directors and said
Gregory A. Hahn duly acknowledged to me that said
company executed the same.

X Michelle Hebert
Notary Public
Residing at: X Lakewood, Colo.

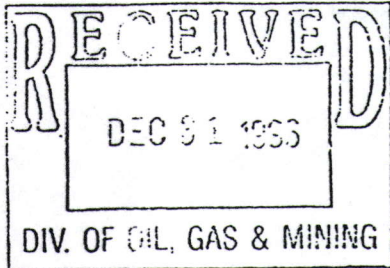
X 3-18-99
My Commission Expires:

ATTACHMENT B

MR FORM 6
Joint Agency Bonding Form

(June 10, 1996)

Bond Number _____
Permit Number _____
Mine Name _____



STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
Division of Oil, Gas and Mining
1594 West North Temple Suite 1210
PO Box 145801
Salt Lake City, Utah 84114-5801
Telephone: (801) 538-5291
Fax: (801) 359-3940

THE MINED LAND RECLAMATION ACT

SURETY BOND

The undersigned Summo USA Corporation as Principal, and
Robert C. Bates, Inc. as Surety, hereby jointly
and severally bind ourselves, our heirs, administrators, executors, successors and assigns unto the
State of Utah, Division of Oil, Gas and Mining, and the U.S. Department of the Interior - Bureau of
Land Management, and the School and Institutional Trust Lands Administration in the penal sum of
One Million Eight Hundred Sixty-Three Thousand, -dollars- (\$ 1,863,967.50)
Nine Hundred Sixty-Seven Dollars and Fifty Cents.

Principal has estimated in the Mining and Reclamation Plan approved by the Division of
Oil, Gas and Mining on the _____ day of _____, 19____, that 314.4* acres of land
will be disturbed by this mining operation in the State of Utah.

A description of the disturbed land is attached as "Attachment A" to
the Reclamation Contract of which this document is an integral part.

* See Attachment A for explanation

The condition of this obligation is that if the Division determines that Principal has
satisfactorily reclaimed the disturbed lands in accordance with the approved Mining and Reclamation
Plan and has faithfully performed all requirements of the Mined Land Reclamation Act, and
complied with the Rules and Regulations adopted in accordance therewith, then this obligation shall
be void; otherwise it shall remain in full force and effect.

If the Mining and Reclamation Plan provides for periodic partial reclamation of the
disturbed lands, and if the lands are reclaimed in accordance with such Plan, Act and regulations,
then Principal may apply for a reduction in the amount of this Surety Bond.

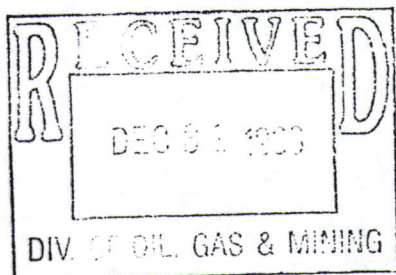
Page 3
MR-6
Joint Agency Surety Bond
Attachment B

Bond Number _____
Permit Number _____
Mine Name _____

SO AGREED this _____ day of _____, 19_____.

Dave D. Lauriski, Chairman
Board of Oil, Gas and Mining

***NOTE:** Where one signs by virtue of Power of Attorney for a Surety Company, such Power of Attorney must be filed with this bond. If the Principal is a corporation, the bond shall be executed by its duly authorized officer.



STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION of OIL, GAS and MINING
1594 West North Temple Suite 1210
PO Box 145801
Salt Lake City, Utah 84114-5801
(801) 538-5291
Fax: (801) 359-3940

RECLAMATION CONTRACT

---ooOoo---

For the purpose of this RECLAMATION CONTRACT the terms below are defined as follows:

"NOTICE OF INTENTION" (NOI): (File No.) M/037/088
(Mineral Mined) Copper

"MINE LOCATION":
(Name of Mine) Lisbon Valley Copper Project
(Description) 18 miles south of La Sal, Utah
San Juan County

"DISTURBED AREA":
(Disturbed Acres) 314.4 Acres/30% of total project*
(Legal Description) (refer to Attachment "A")

"OPERATOR":
(Company or Name) Summo USA Corporation
(Address) Denver Center Building, Suite 900
1776 Lincoln Street
Denver, CO 80203
(Phone) 303-861-5400

* See Attachment A for Explanation

"OPERATOR'S REGISTERED AGENT":

(Name)
(Address)

CT Corporation
50 West Broadway
8th Floor
Salt Lake City, Utah 84104
1-801-531-7090

(Phone)

"OPERATOR'S OFFICER(S)":

Mr. Greg Hahn - President
Mr. Robert A. Prescott - Vice Pres.

"SURETY":

(Form of Surety - Attachment B)

Surety Bond

"SURETY COMPANY":

(Name, Policy or Acct. No.)

Robert C. Bates. Inc.

"SURETY AMOUNT":

(Escalated Dollars)

lpa
\$2,591,054.00

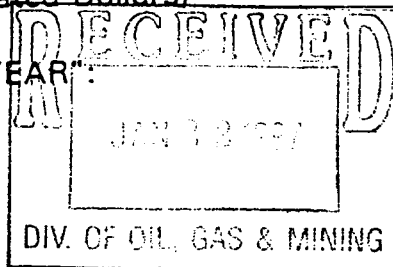
"ESCALATION YEAR":

2002

"STATE":

"DIVISION":

"BOARD":



State of Utah

Division of Oil, Gas and Mining

Board of Oil, Gas and Mining

ATTACHMENTS:

A "DISTURBED AREA":

B "SURETY":

This Reclamation Contract (hereinafter referred to as "Contract") is entered into between Summo USA Corporation the "Operator" and the Utah State Board of Oil, Gas and Mining ("Board").

WHEREAS, Operator desires to conduct mining operations under Notice of Intention (NOI) File No. M/037/088 which has been approved by the Utah State Division of Oil, Gas and Mining "Division" under the Utah Mined Land Reclamation Act, Sections 40-8-1 et seq., Utah Code Annotated, (1953, as amended) (hereinafter referred to as "Act") and implementing rules; and

WHEREAS, Operator is obligated to reclaim that area described as the Disturbed Area as set forth and in accordance with Operator's approved Reclamation Plan, and Operator is obligated to provide surety in form and amount approved by the Board, to assure reclamation of the Disturbed Area.

NOW, THEREFORE, the Board and the Operator agree as follows:

1. Operator agrees to conduct reclamation of the Disturbed Area in accordance with the Act and implementing regulations, the original Notice of Intention dated August 1995, and the original Reclamation Plan dated August 1995. The Notice of Intention as amended, and the Reclamation Plan, as amended, are incorporated by this reference and made a part hereof.
2. Concurrent with the execution hereof, Operator has provided surety to assure that reclamation is conducted, in form and amount acceptable to the Board. Such surety as evidenced by the Surety Contract is in the form of the surety attached hereto as Attachment B and made a part hereof. The Surety Contract shall remain in full force and effect according to its terms unless modified by the Board in writing. If the Surety Contract expressly provides for cancellation, then, within 60 days following the Division's receipt of notice that the Surety Company intends to cancel the Surety Contract, the Operator shall provide a replacement Surety Contract in a form and amount reasonably acceptable to the Board. If the Operator fails to provide an acceptable replacement Surety Contract, the Division may order the Operator to cease further mining activities and to begin immediate reclamation of the Disturbed Area.
3. Operator agrees to pay legally determined public liability and property damage claims resulting from mining to the extent provided in Section 40-8-7(1)(e) of the Act.
4. Operator agrees to perform all duties and fulfill all reclamation requirements applicable to the mine as required by the Act and implementing rules, the Notice of Intention, as amended and the Reclamation Plan, as amended.
5. The Operator's liability under this Contract shall continue in full force and effect until the Division certifies that the Operator has reclaimed the Disturbed Area in accordance with the Act and implementing rules, the Notice of Intention, as amended and the Reclamation Plan, as amended.
6. If reclamation of discrete sections of the Disturbed Area is completed to the satisfaction of the Division, and the Division finds that such sections are severable from the remainder of the Disturbed Area, Operator may request the Division to certify that Operator has reclaimed such discrete sections of the Disturbed Area in accordance with the Act and Implementing rules, the Notice of Intention, as

amended and the Reclamation Plan, as amended. If the Division makes such certification, Operator may make request to the (Board) that the aggregate face amount of the Surety Contract provided pursuant to paragraph 2 be reduced to an amount necessary to provide for completion of the remaining reclamation. The (Board) shall hear Operator's request for such reduction in accordance with the Board's Procedural Rules concerning requests for Agency Action.

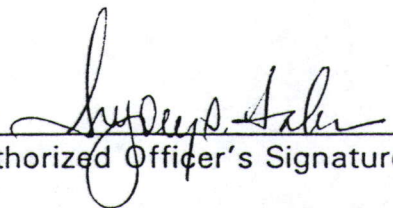
7. Operator agrees to indemnify and hold harmless the State, Board and the Division from any claim, demand, liability, cost, charge, suit, or obligation of whatsoever nature arising from the failure of Operator or Operator's agents and employees, or contractors to comply with this Contract.
8. Operator may, at any time, submit a request to the Board to substitute surety. The Board, in its sole judgment and discretion, may approve such substitution if the substitute surety meets the requirements of the Act and the implementing rules.
9. This Contract shall be governed and construed in accordance with the laws of the State of Utah.
10. If Operator shall default in the performance of its obligations hereunder, Operator agrees to pay all costs and expenses, including reasonable attorney's fees and costs incurred by the Division and/or the Board in the enforcement of this Contract.
11. Any breach that the Division finds to be material of the provisions of this Contract by Operator may, at the discretion of the Division, result in an order to cease mining operations. After opportunity for notice and hearing, the Board of Oil, Gas and Mining may enter an order to revoke the Notice of Intention, order reclamation, or order forfeiture of the Surety Contract, or take such other action as is authorized by law.
12. In the event of forfeiture of the Surety Contract, Operator shall be liable for any additional costs in excess of the surety amount which are required to comply with this Contract. Any excess monies resulting from forfeiture of the Surety Contract, upon completion of reclamation and compliance with this Contract, shall be returned to the rightful claimant.
13. This Contract including the Notice of Intention, as amended and the Reclamation Plan, as amended, represents the entire agreement of the parties involved, and any modification must be approved in writing by the parties involved.

14. Each signatory below represents that he/she is authorized to execute this Contract on behalf of the named party.

Summo USA Corporation

Operator Name

By: Gregory A. Hahn
Authorized Officer (Typed or Printed)

X 
Authorized Officer's Signature

X 12/30/96
Date

=====

SO AGREED this _____ day of _____, 19____

AND APPROVED AS TO FORM AND AMOUNT OF SURETY:

BY _____
Dave D. Lauriski, Chairman
Utah State Board of Oil, Gas and Mining

DIVISION OF OIL, GAS AND MINING:

By _____
James W. Carter, Director

Date

STATE OF _____)
_____) ss:
COUNTY OF _____)

On the _____ day of _____, 19 _____, personally
appeared before me, who being duly sworn did say that he/she, the said
_____ is the Director of the Division of
Oil, Gas and Mining, Department of Natural Resources, State of Utah, and he/she
duly acknowledged to me that he/she executed the foregoing document by
authority of law on behalf of the State of Utah.

Notary Public
Residing at: _____

My Commission Expires:

OPERATOR:

Summo USA Corporation

Operator Name

By Gregory A. Hahn - President
Corporate Officer - Position

X 12/30/96
Date

X [Signature]
Signature

STATE OF X Colorado)
COUNTY OF X Denver) ss:

On the X 30 day of X December, 19X 96, personally
appeared before me Gregory A. Hahn who
being by me duly sworn did say that he/she, the said Gregory A. Hahn
is the President of Summo USA Corporation
and duly acknowledged that said instrument was signed on behalf of said company
by authority of its bylaws or a resolution of its board of directors and said
Gregory A. Hahn duly acknowledged to me that said
company executed the same.

X Michelle Hebert
Notary Public
Residing at: X Lakewood, Colo.

X 3-18-99
My Commission Expires:

ATTACHMENT "A"

Summo USA Corporation
Operator
M/037/088
Permit Number

Lisbon Valley Copper Project
Mine Name
San Juan County, Utah

The legal description of lands to be disturbed is:

- * The total proposed project disturbance is = 1048 acres. Summo USA Corporation is proposing to initially bond for 30% (3 years of activity) = 314.4 acres

Before additional activities at the project occur, Summo will post the appropriate additional bond necessary for the activity.

All Proposed activities are located in all, or parts of:

Sections 22, 23, 24, 25, 26, 27, 34, 35, & 36 Township 30 South, Range 25 East

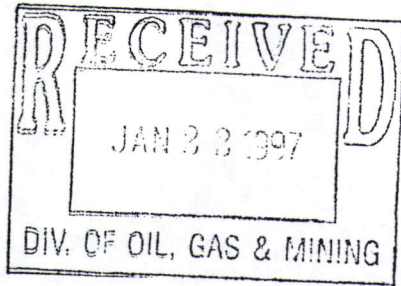
Section 1 Township 31 South, Range 25 East

Sections 30 & 31 Township 30 South, Range 26 East

ATTACHMENT B

MR FORM 6
Joint Agency Bonding Form

(June 10, 1996,



Bond Number _____
Permit Number M/037/088
Mine Name Lisbon Valley Copper Pro

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
Division of Oil, Gas and Mining
1594 West North Temple Suite 1210
PO Box 145801
Salt Lake City, Utah 84114-5801
Telephone: (801) 538-5291
Fax: (801) 359-3940

THE MINED LAND RECLAMATION ACT

SURETY BOND

The undersigned Summo USA Corporation as Principal, and
Robert C. Bates, Inc. as Surety, hereby jointly
and severally bind ourselves, our heirs, administrators, executors, successors and assigns unto the
State of Utah, Division of Oil, Gas and Mining, and the U.S. Department of the Interior - Bureau of
Land Management, and the School and Institutional Trust Lands Administration in the penal sum of
Two Million, Five Hundred Ninty-one Thousand, _____ ~~dollars~~ (\$2,591,054.00) *JP*
Fifty-Four Dollars

Principal has estimated in the Mining and Reclamation Plan approved by the Division of
Oil, Gas and Mining on the _____ day of _____, 19____, that 314.4* acres of land
will be disturbed by this mining operation in the State of Utah.

A description of the disturbed land is attached as "Attachment A" to
the Reclamation Contract of which this document is an integral part.

* See Attachment A for explanation

The condition of this obligation is that if the Division determines that Principal has
satisfactorily reclaimed the disturbed lands in accordance with the approved Mining and Reclamation
Plan and has faithfully performed all requirements of the Mined Land Reclamation Act, and
complied with the Rules and Regulations adopted in accordance therewith, then this obligation shall
be void; otherwise it shall remain in full force and effect.

If the Mining and Reclamation Plan provides for periodic partial reclamation of the
disturbed lands, and if the lands are reclaimed in accordance with such Plan, Act and regulations,
then Principal may apply for a reduction in the amount of this Surety Bond.

In the converse, if the Mining and Reclamation Plan provides for a gradual increase in the area disturbed or the extent of disturbance, then, the Division may require that the amount of this Surety Bond be increased, with the written approval of the Surety.

This bond may be canceled by the Surety after ninety (90) days following receipt by the Division and Principal of written notice of such cancellation. Surety's liability shall then, at the expiration of said ninety (90) days, cease and terminate except that Surety will remain fully liable for all reclamation obligations of the Principal incurred prior to the date of termination.

Principal and Surety and their successors and assigns agree to guarantee said obligation and to indemnify, defend, and hold harmless the Division from any and all expenses (including attorney fees) which the Division may sustain in the collection of sums due hereunder.

Surety will give prompt notice to Principal and to the Division of the filing of any petition or the commencement of any proceeding relating to the bankruptcy, insolvency, reorganization, or adjustment of the debts of Surety, or alleging any violation or regulatory requirements which could result in suspension or revocation of the Surety's license to do business.

IN WITNESS WHEREOF, the Principal and Surety hereunto set their signatures and seals as of the dates set forth below.

Summo USA Corporation
Principal (Permittee)

X 12/30/96
Date

Gregory A. Hahn
By (Name typed):

President
Title

X [Signature]
Signature

Surety Company

Robert C. Bates, Inc. - Tulsa, OK
Company Officer

Date

Ms. Debbie Morris - Agent
Title/Position

Signature

Page 3
MR-6
Joint Agency Surety Bond
Attachment B

Bond Number _____
Permit Number _____
Mine Name _____

SO AGREED this _____ day of _____, 19_____.

Dave D. Lauriski, Chairman
Board of Oil, Gas and Mining

***NOTE:** Where one signs by virtue of Power of Attorney for a Surety Company, such Power of Attorney must be filed with this bond. If the Principal is a corporation, the bond shall be executed by its duly authorized officer.

Bond Number _____
Permit Number _____
Mine Name _____

AFFIDAVIT OF QUALIFICATION

On the _____ day of _____, 19____, personally appeared before me _____ who being by me duly sworn did say that he/she, the said _____ is the _____ of _____ and duly acknowledged that said instrument was signed on behalf of said company by authority of its bylaws or a resolution of its board of directors and said _____ duly acknowledged to me that said company executed the same, and that he/she is duly authorized to execute and deliver the foregoing obligations; that said Surety is authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertaking and obligations.

Signed: _____
Surety Officer

Title: _____

STATE OF _____)
COUNTY OF _____) ss:

Subscribed and sworn to before me this _____ day of _____, 19_____.

Notary Public

Residing at: _____

My Commission Expires:

_____, 19_____.

DIRECT COSTS

Mobilization and Demobilization	1 LOT	35,000	35,000
Leach Pad & Waste Dumps	combined total of previous items		5,533,170
Misc. Surface Areas parking lots & processing areas	combined total of previous items		400,989
Total Direct Costs			5,969,160

INDIRECT COSTS

Plant Dismantling*	1 LOT	450,000	450,000
*Assumes no salvage value. Dismantling involves removal of above ground above ground structures & the breaking up and burial of concrete foundations.			

Plugging monitoring wells with concrete from bottom to top
3 of the Navajo wells considered pit de-watering wells

process area: 5 wells; 4-inch dia, 500 ft	2,500 lf	2.20	5,500
Navajo wells: 6 wells; 6-inch dia, 1200 ft	7,200 lf	3.30	23,760

Engineering - 5% of total direct costs	1 LOT	298,458	298,458
--	-------	---------	---------

Owners Cost - - - OMITTED - - -

Water quality monitoring for 11 wells

2 samples per well per year for 5 years	110 sample	500	55,000
---	------------	-----	--------

Revegetation monitoring for 5 years	5 year	5,000	25,000
-------------------------------------	--------	-------	--------

Construction Management	1 LOT	180,199	180,199
-------------------------	-------	---------	---------

Contingency (10% of Total Direct Costs)	1 LOT	596,916	596,916
---	-------	---------	---------

Total Indirect Costs			1,634,833
----------------------	--	--	-----------

Unadjusted Total Costs			7,603,993
------------------------	--	--	-----------

Escalation for 5 years at 2.58%			1,032,853
---------------------------------	--	--	-----------

TOTAL RECLAMATION COSTS (2002-\$)			\$8,636,846
-----------------------------------	--	--	-------------

average \$/acre cost = \$8,241

30% of total reclamation costs (314.4 acres of disturbance)			\$2,591,054
---	--	--	-------------



State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor
Ted Stewart
Executive Director
James W. Carter
Division Director

1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801
801-538-5340
801-359-3940 (Fax)
801-538-7223 (TDD)

March 11, 1997

TO: Board of Oil, Gas and Mining

THRU: Mary Ann Wright, Associate Director *MAW*

THRU: D. Wayne Hedberg, Permit Supervisor *DWH*

FROM: Anthony A. Gallegos, Senior Reclamation Specialist *aaG*

RE: Response to Board Request for Comparision of Surety Amount Estimates. Three-Year Amount Versus 30% Total (Life of Mine) Amount. Summo USA Corporation. Lisbon Valley Copper Project. M/037/088. San Juan County. Utah

As requested by the Board at the January 22, 1997 Hearing, the Division has compared the 30% total surety amount proposed by Summo with a surety amount based on specific disturbances and facilities needed for the first three years of operation. The three-year estimate was prepared by Summo's consultant, Pat Gochmour, and forwarded to the Division. During the first three years of the project some mine facilities or features will need to be completely constructed (e.g. process ponds). Other features will only be a fraction of their "life of mine size" during the first three years of operation (e.g. waste dumps). The three-year estimate is approximately 3.8% (or \$97,603) greater than the estimate proposed during the January 22nd Hearing. The three-year disturbed area estimate is roughly 80.6 acres greater (395 acres) than the 314.4 acres proposed at the Hearing. The three-year estimate rounded to the nearest thousand dollars is \$2,689,000 in year 2000-\$.

The Division supports this revised amount and acreage. The BLM State Office has notified the Division this proposed amount meets the BLM's bonding requirements for project disturbances on federal lands in the first three years of project disturbance. Summo's consultant, Pat Gochmour, has informed the Division that Summo will post a surety amount based on the three-year estimate.

The reclamation cost estimate submitted during the January Board Hearing has been revised to show the features to actually be constructed during the first three years of the project. Calculations for these items are shown in the right margin of the attached revised estimate. The last page of the revised estimate shows the rounded three-year surety amount as \$2,689,000 in year 2000 dollars. This figure includes three years of escalation.

EXHIBIT

B

Page 2
Board Memo
M/037/088
March 11, 1997

To assure compliance with this Order, Summo USA has agreed to provide the Division with appropriately certified surveys (aerial, g.p.s., etc.), and disturbed area maps that accurately reflect the actual affected areas, at least once each year with their year end Annual Report. The surveys and maps shall be stamped and prepared under the direct supervision of a registered professional engineer or registered land surveyor.

jb

Attachment: revised estimate of 3/5/97

cc: Terry McParland, BLM State Office
Lynn Jackson, BLM, Moab District
Dennis Fredericks, DWQ
Will Stokes, SITLA

summo-3y.mem

Summo USA Corporation

last revisio 02/25/97

Lisbon Valley Copper Project

filename m37-88.WB2

page "ESTIMATE"

M/037/088

San Juan County

Prepared by Utah State Division of Oil, Gas & Mining

Details of Final Reclamation

-This estimate is a revision of the 21-Jan-97 estimate by The Winters Co.

-Items which have changed since the 03-Jan-97 estimate are highlighted

Total disturbed area = 1,048.0 acres

3-YR ESTIMATE last rev 03/05/97

IN RIGHT MARGIN

% adjust

\$

LOM = Life Of Mine

0 acres

0

Activity	area	Quantity	Units	\$/unit	\$
Waste dump A - 190 acres					
area of top	456,444		SY		
area of slope	462,680		SY		
scarify top (flat) area		456,444	SY	0.20	91,289
12 inches soil on top of dump		152,148	CY	1.25	190,185
12 inches soil on slope		154,227	CY	1.25	192,784
seed entire surface		190	ACRE	174	33,060
Total - waste dump "A" reclamation					507,318

Waste Dump "B" -- 94 Acres					
area of top	197,222		SY		
area of slope	258,240		SY		
scarify top (flat) area		197,222	SY	0.20	39,444
12 inches soil on top of dump		65,741	CY	1.25	82,176
12 inches soil on slope		86,080	CY	1.25	107,600
seed entire surface		94	ACRE	174	16,356
Total - Waste dump "B" reclamation					245,577

Waste Dump "B" 0.54 % of total LO

	0.54	21,401
	0.54	44,585
dump not full height	0.27	29,052
51 acres	0.54	8,874
		103,912

Waste Dump "C" - 120 Acres					
area of top	344,222		SY		
area of slope	238,633		SY		
scarify top (flat) area		344,222	SY	0.20	68,844
12 inches soil on top of dump		114,741	CY	1.25	143,426
12 inches soil on slope		79,544	CY	1.25	99,430
seed entire surface		120	ACRE	174	20,880
Total - Waste Dump "C" reclamation					332,581

Waste Dump "C" 0.73 % of total LO

	0.73	50,486
	0.73	105,179
dump not full height	0.27	26,846
88 acres	0.73	15,312
		197,823

Leach Pad - 254 Acres *

Rinse Heap - 12% of total ore neutralized; rinsing & evaporation for 18 months					
lime (2.5 lbs/ton) x (\$0.025/lb) x (5.9M ton)	5,900,000	ton		0.063	368,750
labor, power & pump for draindown & evaporation for 18 months	1	lot		446,640	446,640
subtotal for heap rinse & evaporation					815,390

Leach Pad 0.27 % of LOM ore
Cells 1 & 2

0.27 220,155

Heap Earthwork					
area of top	788,556		SY		
area of slope	441,653		SY		
12 inch clay cap on top	12	262,852	CY	2.50	657,130
12 inch clay cap on slope	12	147,218	CY	2.50	368,044
24 inch crushed rock on top	24	525,704	CY	2.50	1,314,260
24 inch crushed rock on slope	24	294,435	CY	2.50	736,088
12 inches soil on top	12	262,852	CY	1.25	328,565
12 inches soil on slope	12	147,218	CY	1.25	184,022
seed entire surface		254	ACRE	174	44,196
subtotal - clay, crushed rock, soil & seeding for leach pad					3,632,306

120 acres

0.27 980,723

* POO has 266 acres. 12 acres is considered buffer area around the leach pad & is included in other areas (pond area, crusher area, powerline corridor, etc.)

Reclamation of Miscellaneous Areas**Pond Area - 11 Acres**

raffinate pond - 12 inches soil	4,852 CY	1.25	6,065
PLS pond - 12 inches soil	4,852 CY	1.25	6,065
water runoff pond - 12 inches soil	8,229 CY	1.25	10,286
seed 3 pond areas	11 ACRE	174	1,914
Total - Pond Area Reclamation			24,330

Plant & Crusher Area - 25.5 Acres

apply 12 inches soil	41,080 CY	1.25	51,350
seed entire area	26 ACRE	174	4,437
Total - Plant Area Reclamation			55,787

Haul Roads - 40 Acres

scarify	192,889 SY	0.20	38,578
contour	64,296 CY	1.25	80,370
apply 12 inches soil	67,511 CY	1.25	84,389
seed entire area	40 ACRE	174	6,960
Total - Haul Road Reclamation			210,297

Power Line Corridor - 64 Acres*

*Note the Power Co. has requested the power line remain open	64 ACRE	n/c	0
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Reseed Soil Stockpile Areas - 40 Acres

reseed 40 acres	40 ACRE	174	6,960
Total - Reseed Soil Stockpile Areas			6,960

Fences & Berms* Around Open Pits

fence around Sentinel Pit 1	5,620 LF	3.02	16,972
fence around Sentinel Pit 2	2,140 LF	3.02	6,463
fence around Centennial Pit	8,980 LF	3.02	27,120
fence around GTO Pit	7,410 LF	3.02	22,378
Total - Pit Fences			72,933

*Note-Cost for berms is not shown, as these will be built during during plant construction phase. Fencing material will be recycled from the leach pad area.

Surface Drainage Diversion Ditches*

leach pad area	7,473 CY	1.25	9,341
plant area	1,595 CY	1.25	1,994
crusher area	1,810 CY	1.25	2,263
dump areas	13,668 CY	1.25	17,085
Total - Drainage Diversion Ditches			30,683

*Work is for removing diversion sediment structures

Reclamation of Miscellaneous Areas

Pond Area 1.00 % of total LOM

11 acres 1.00 24,330

Plant & Crusher 0.78 % of total LOM

20 acres 0.78 43,755

Haul Roads 0.53 % of total LOM

21 acres 0.53 110,406

64 0

Reseed Soil Stockpile Areas

20 acres 0.50 % of total LOM
0.50 3,480

Fences & Berms 1.00 % of total LOM

1.00 16,972
1.00 6,463
1.00 27,120
pit inactive 0 0
50,555

Surface Drainage % of total LOM varies

0.27 2,522
1.00 1,994
1.00 2,263
0.53 9,055
15,833

DIRECT COSTS

Mobilization and Demobilization	1 LOT	35,000	35,000
Leach Pad & Waste Dumps	combined total of previous item	5,533,170	
Misc. Surface Areas parking lots & processing areas	combined total of previous item	400,989	
Total Direct Costs		5,969,160	

INDIRECT COSTS

Plant Dismantling*	1 LOT	450,000	450,000
*Assumes no salvage value. Dismantling involves removal of above ground above ground structures & the breaking up and burial of concrete foundations.			
Plugging monitoring wells with concrete from bottom to top			
3 of the Navajo wells considered pit de-watering wells			
process area: 5 wells; 4-inch dia, 500 ft	2,500 lf	2.20	5,500
Navajo wells: 6 wells; 6-inch dia, 1200 ft	7,200 lf	3.30	23,760
Engineering - 5% of total direct costs	1 LOT	298,458	298,458
Owners Cost --- OMITTED ---			
Water quality monitoring for 11 wells			
2 samples per well per year for 5 years	110 sample	500	55,000
Revegetation monitoring for 5 years	5 year	5,000	25,000
Construction Management	1 LOT	180,199	180,199
Contingency (10% of Total Direct Cos	1 LOT	596,916	596,916
Total Indirect Costs		1,634,833	
Unadjusted Total Costs		7,603,993	
Escalation for 5 years at 2.58%		1,032,853	
TOTAL RECLAMATION COSTS (2002-\$)		\$8,636,846	
average \$/acre cost =		\$8,241	
30% of total reclamation costs (314.4 acres of disturbance)		\$2,591,054	

DIRECT COSTS	0.75 % of total LO	
Mob/demob	0.75	26,250
subtotal pads & dumps		1,502,613
subtotal misc. areas		248,359
Total Direct Costs 3-yr		1,777,221

INDIRECT COSTS	0.75 % of total LO	
Plant Dismantling	0.75	337,500

Plugging monitoring wells		
	LF	
3 wells	1500	3,300
4 wells	4800	15,840

88,861

Water quality monitoring	
70 samples	35,000

0.27 % of total LOM 6,750

0.27 % of total LOM 48,654

177,722

Total Indirect Costs 3-yr 713,627**Unadjusted Total Costs 3- 2,490,848**

Escalation for 3 y |(2000-\$) 197,808

Total for 3-yr estimate \$2,688,657

average \$/acre cost = \$6,807

(30% est) - (3-yr est) (\$97,603)

percent difference = -3.8%

395 ACRES DISTURBED FOR 3-YR ESTIM

ROUNDED 3-YR ESTIMAT \$2,689,000